

FAS – Office of Global Analysis (OGA)
United States Department of Agriculture (USDA)
International Operational Agriculture Monitoring Program



February Summary

February 24, 2009

(1) Based on season-to-date conditions winter grains (wheat and barley) production outlook for MY 2009/10 is potentially better than last year but is not expected to fully recover to normal production levels such as those in MY 2006/07 and MY 2007/08. Major production provinces of Khuzestan, and Fars, which cumulatively produce over 25% of total wheat and 10% of barley, have been receiving well below normal rainfall and are showing significantly lower vegetation production than last year at this time. Provinces in the northwest and along the Caspian Sea, which produce over 30% of wheat and 30% of barley, continue to receive adequate rainfall and Razavi Khorasan in the east has seen a recent increase in precipitation events. Rainfall in the coming months, March through May, will be critical to determining the health and/or failure of the MY 2009/10 winter grains.

(2) Season to date precipitation has left over 65% of the country with below normal rainfall (Figure 2) affecting primarily the south and central portions of Iran. February rainfall events favored provinces in the central northwest and along the Caspian Sea, which have seen adequate and regular precipitation since October, and the northeast province of Razavi Khorasan which until recently had received minimal precipitation (Figure 3).

(3) In general, season-to-date rainfall appears similar to the same period last year (MY 2008/09) when large reductions in grain yields occurred; however the spatial configuration of poor rainfall so far this year is only affecting 44% of Iran's winter grains crop as compared to 75% of grains area affected by MY 2008/09 low precipitation conditions. The grain areas affected by below normal precipitation cumulatively produce 56% of wheat and 48% of barley, however it is important to note that many of these areas normally have access to irrigation and may continue to produce grain under low precipitation conditions (Figure 4). Over 70% of all wheat production and 65% of barley production in Iran are at least partially irrigated. The status of irrigation supplies is unknown following over 2 years of well below normal rainfall in Iran. Case in point are the major grain areas of Khuzestan and Fars, which normally have the greatest concentrations of grains under irrigation in the country. The fact that the majority of grain areas in these two provinces are experiencing significant reduction in crop greenness this season compared to last year indicates there is a potential shortfall of irrigation supplies to offset poor seasonal rainfall conditions.

(4) There are only 11 provinces in Iran that generate over half their barley production from rainfed fields. Of these 11 provinces four are experiencing below normal rainfall, the remaining 7 provinces, receiving normal or better than normal rainfall, cumulatively account for more than 20% of all barley production in Iran. For rainfed wheat production there are 6 provinces in Iran that derive over half of their crop from rainfed sources. Two of these provinces are experiencing below normal rainfall, the other four provinces, receiving better than normal precipitation, account for 8% of total wheat production.

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(5) Unseasonably warm temperatures in Iran (Figure 5) have led to increased snow melt, particularly in the Northwest provinces and the Khorasan provinces in the east. Current snow area estimates indicate conditions to be around 30% less than the previous five years average (Figure 6). While not directly correlated with crop health and productivity during the growing season, early snowmelt could potentially eliminate a late spring source of irrigation to crops in lowland areas, if spring rainfall is deficient and drought conditions persist. It is believed that last years severe drought lead to both rainfed crop failure and declines in irrigated crop yields.

(6) MODIS NDVI values compared against last year provide mixed results showing large scale and significant decreases in crop productivity in Khuzestan and Fars provinces, which account collectively for 25% of national wheat production and 10% of barley, and significant increase in crop productivity in the northwest provinces and Razavi Khorasan in the east (Figure 7). NDVI difference from the short term mean indicates similar issues along the Persian Gulf where rainfall has been poor and increased crop performance in the northwest where rainfall has been ideal. In the image comparisons between current and previous years, area under snow in any either is excluded from the analysis so as not to inappropriately identify significant vegetation change.

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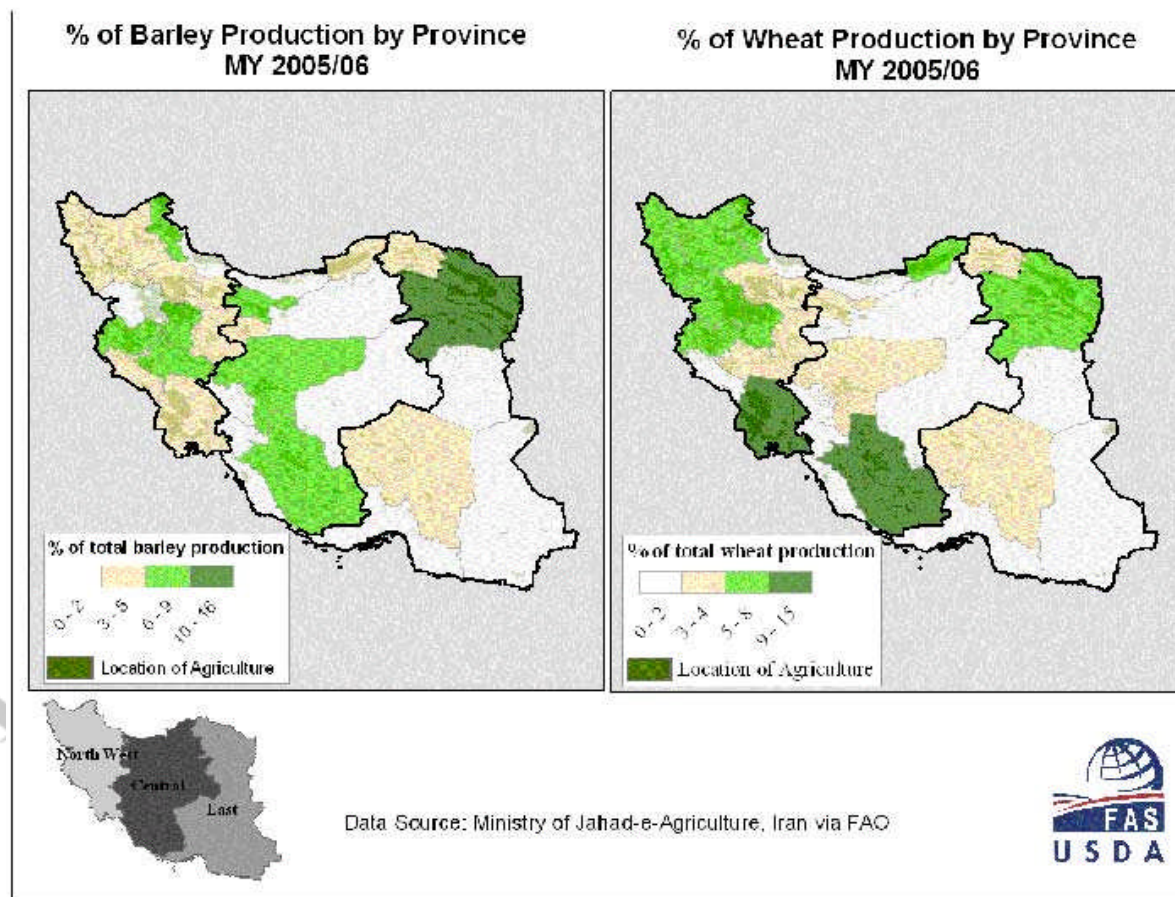
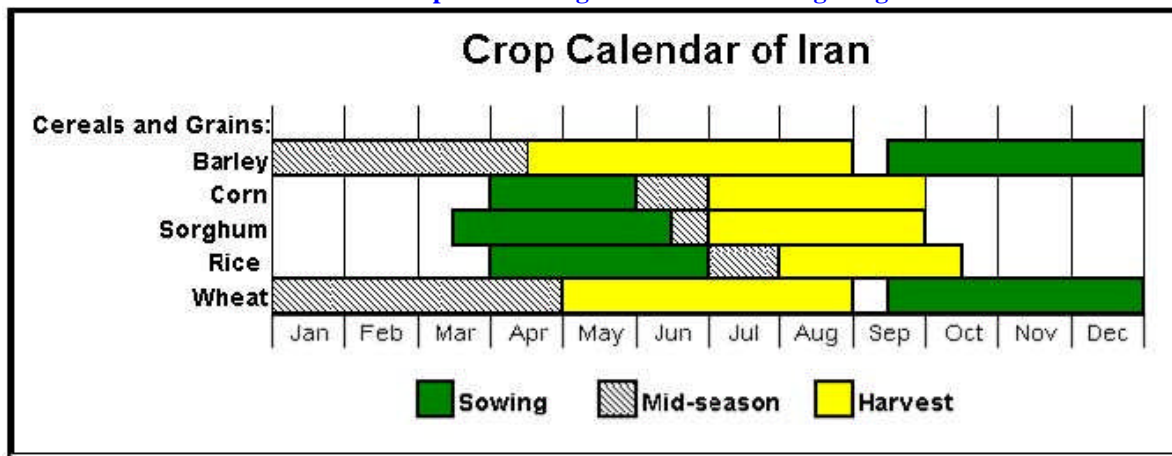


Figure 1. Breakdown by province, percent of total wheat and barley production in Iran.

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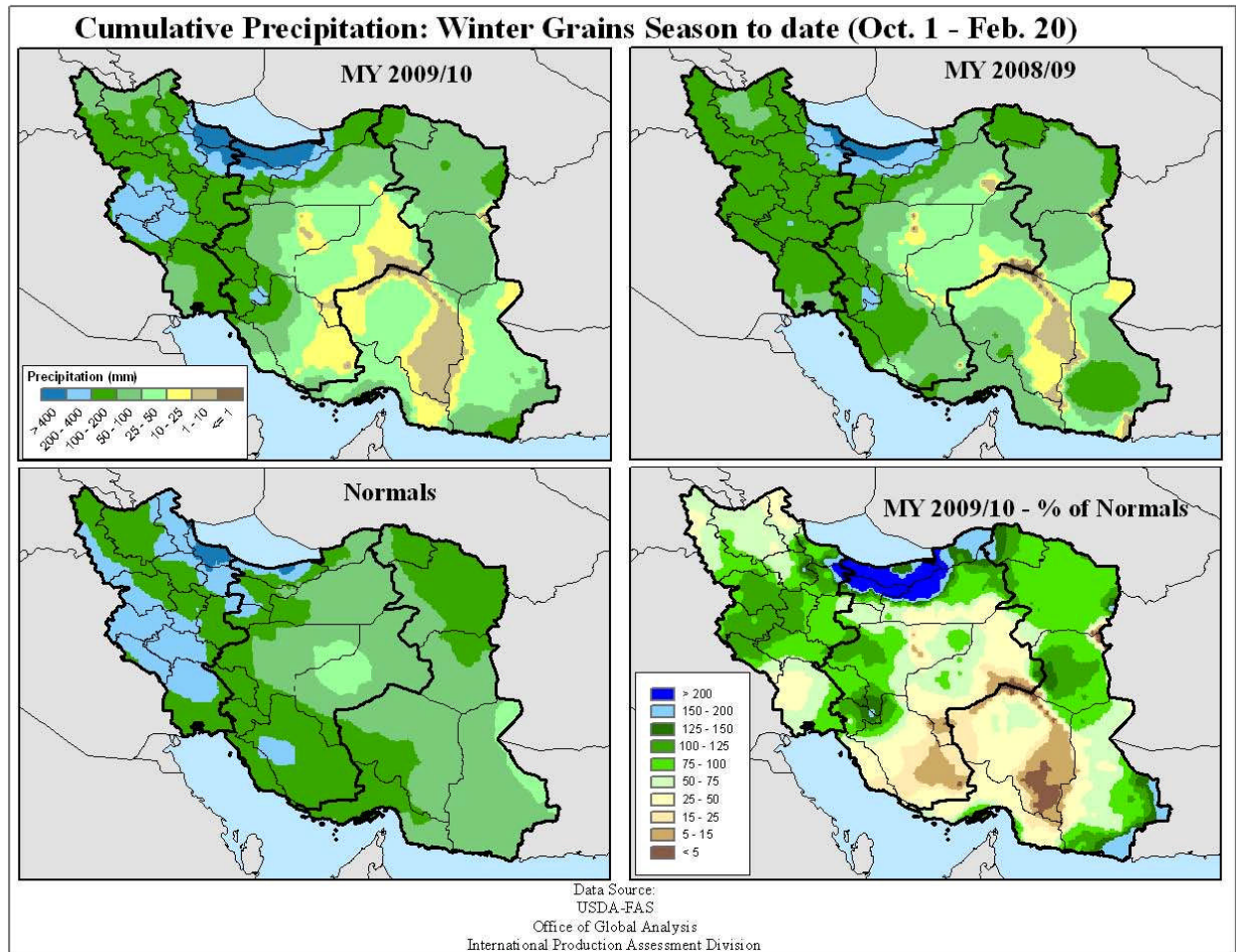


Figure 2. Cumulative precipitation since start of the current winter grains season, MY 2009/10, compared with the previous season, MY 2008/09, and precipitation normals.

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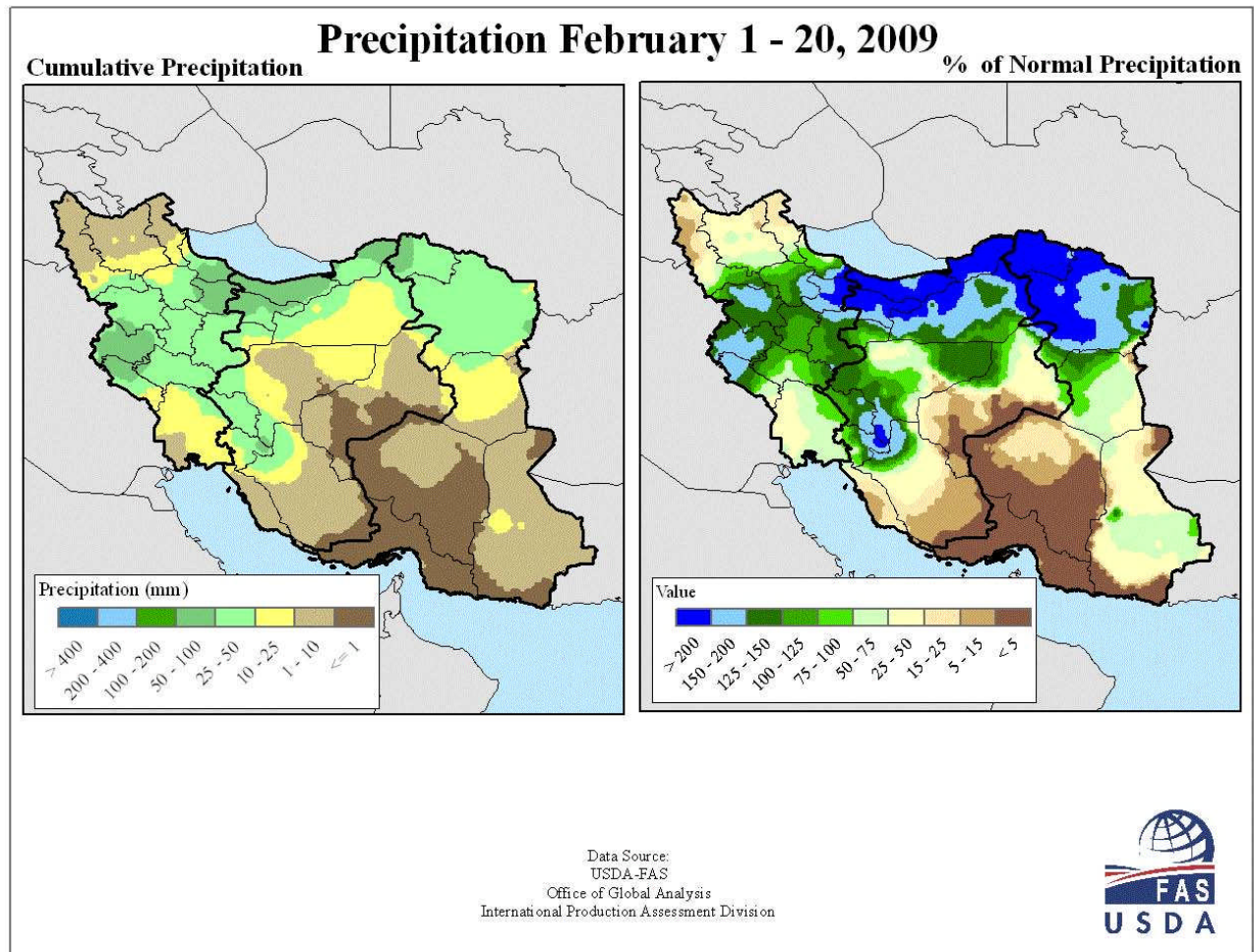


Figure 3. Cumulative precipitation during the first two decades of January, 2009.

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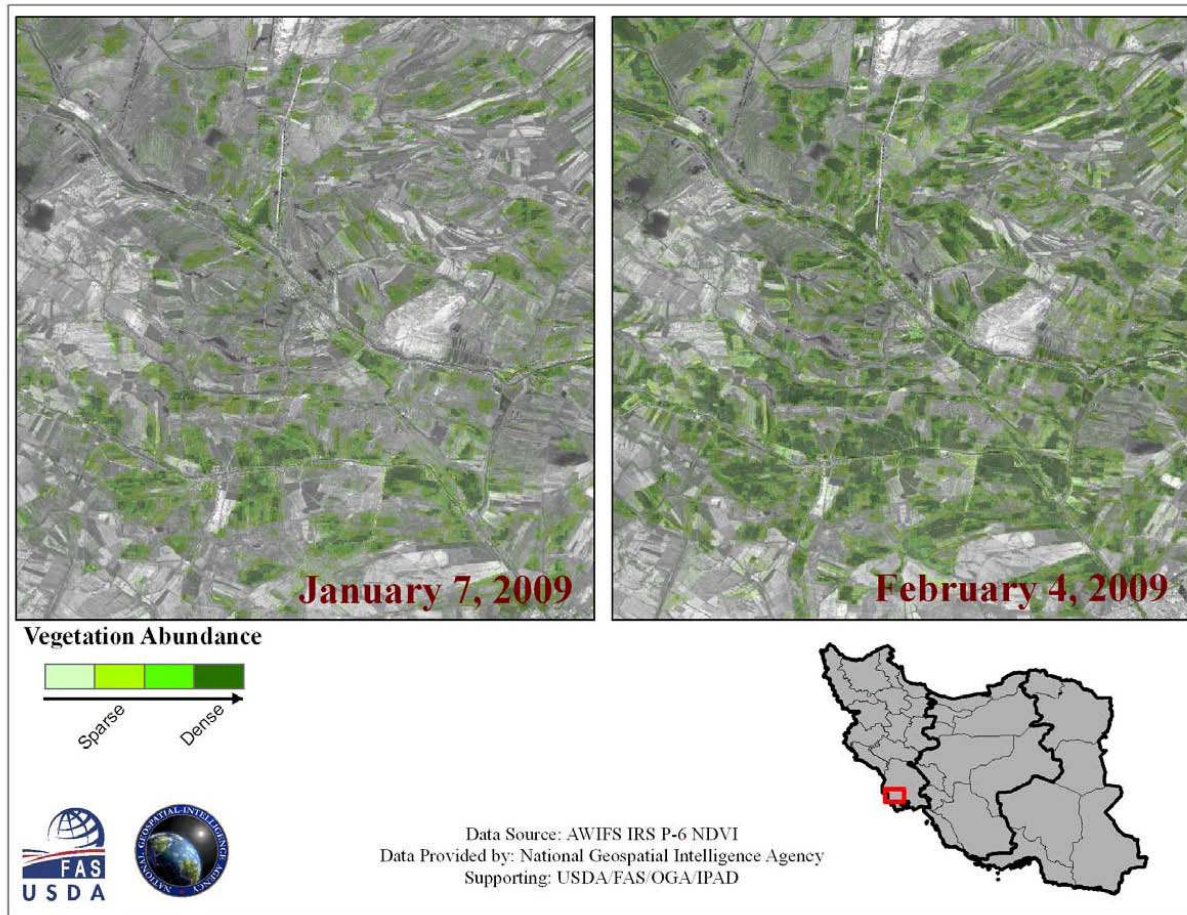


Figure 4. Evidence of winter grains crop production and continued growth despite season to date precipitation of 45% normal levels in Khuzestan.

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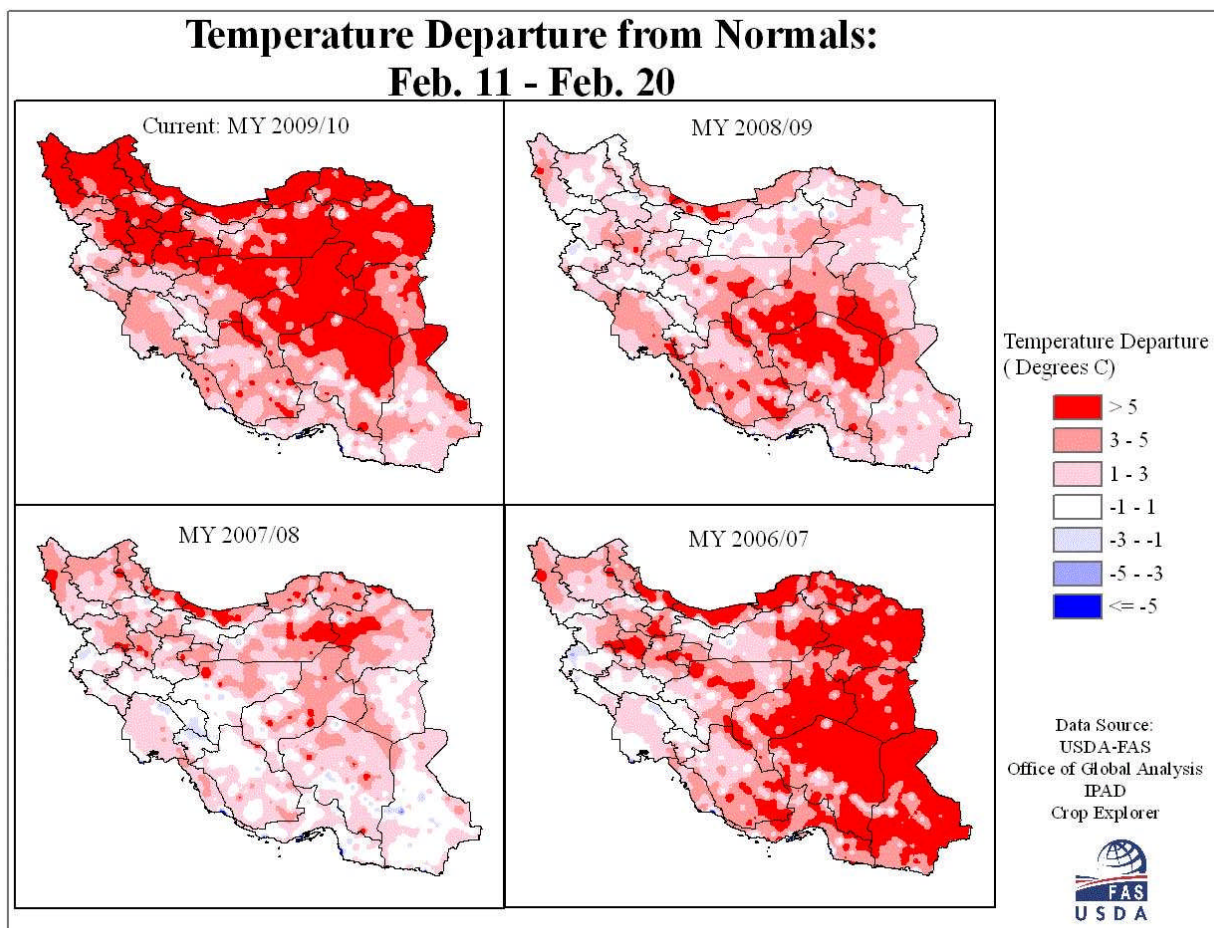
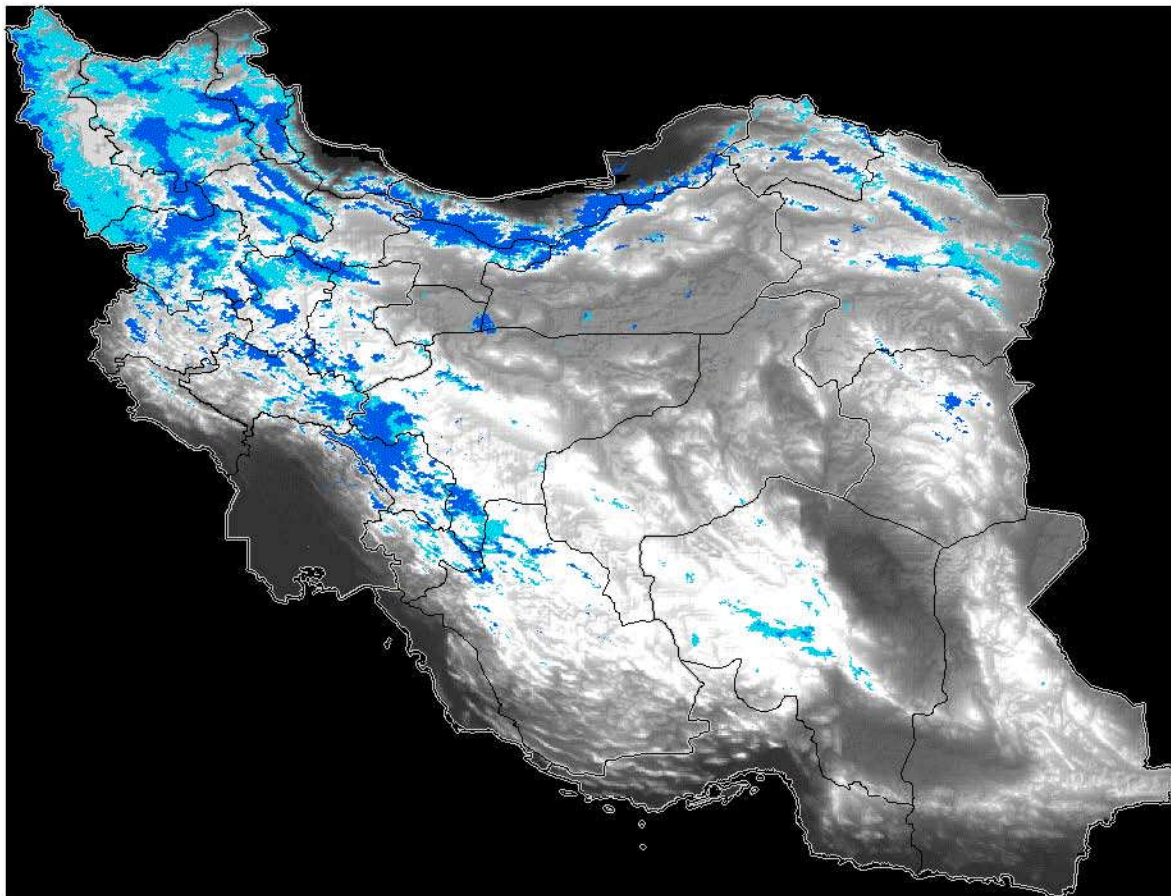
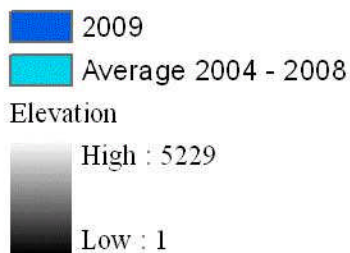


Figure 5. Departure from normal temperatures during the second decade of February, a comparison across the last four years.

Annual Snow Accumulation Locations: current year compared against 2004-2008 average



Location of Snow Accumulation by February 17th



Data Source:
NASA
National Snow and Ice Data Center



Figure 6. Snow accumulation as of February 18th, 2009. Current snow accumulated area for MY 2009/10 winter grains season compared to average area of snow accumulation during the previous 5 years.

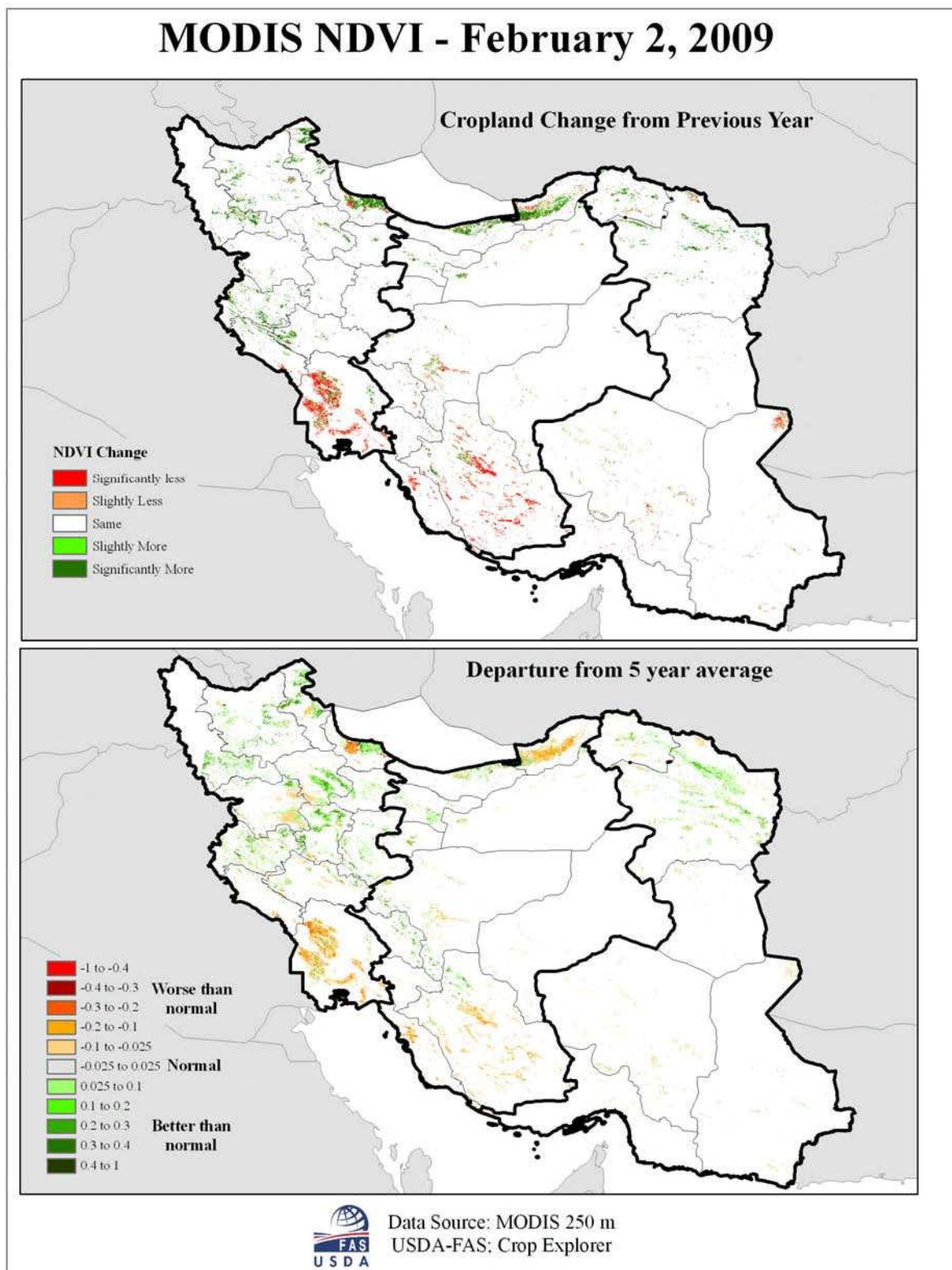


Figure 7. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09), and comparing current vegetation abundance against the short term, 5 year, average.

MODIS NDVI Change from Previous Year

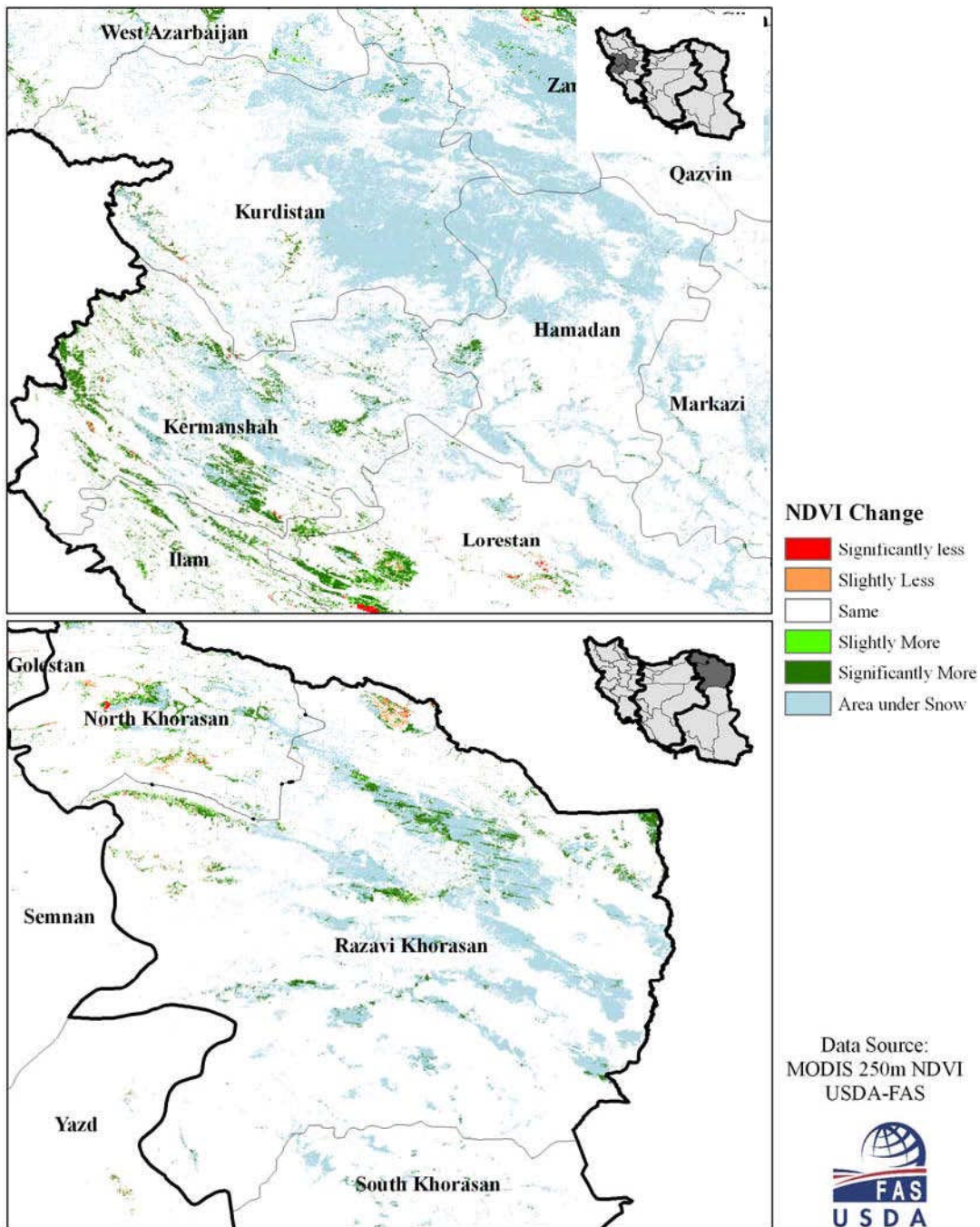


Figure 8. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09) over the major grains provinces in then central northwest and northeast.

MODIS NDVI Change from Previous Year

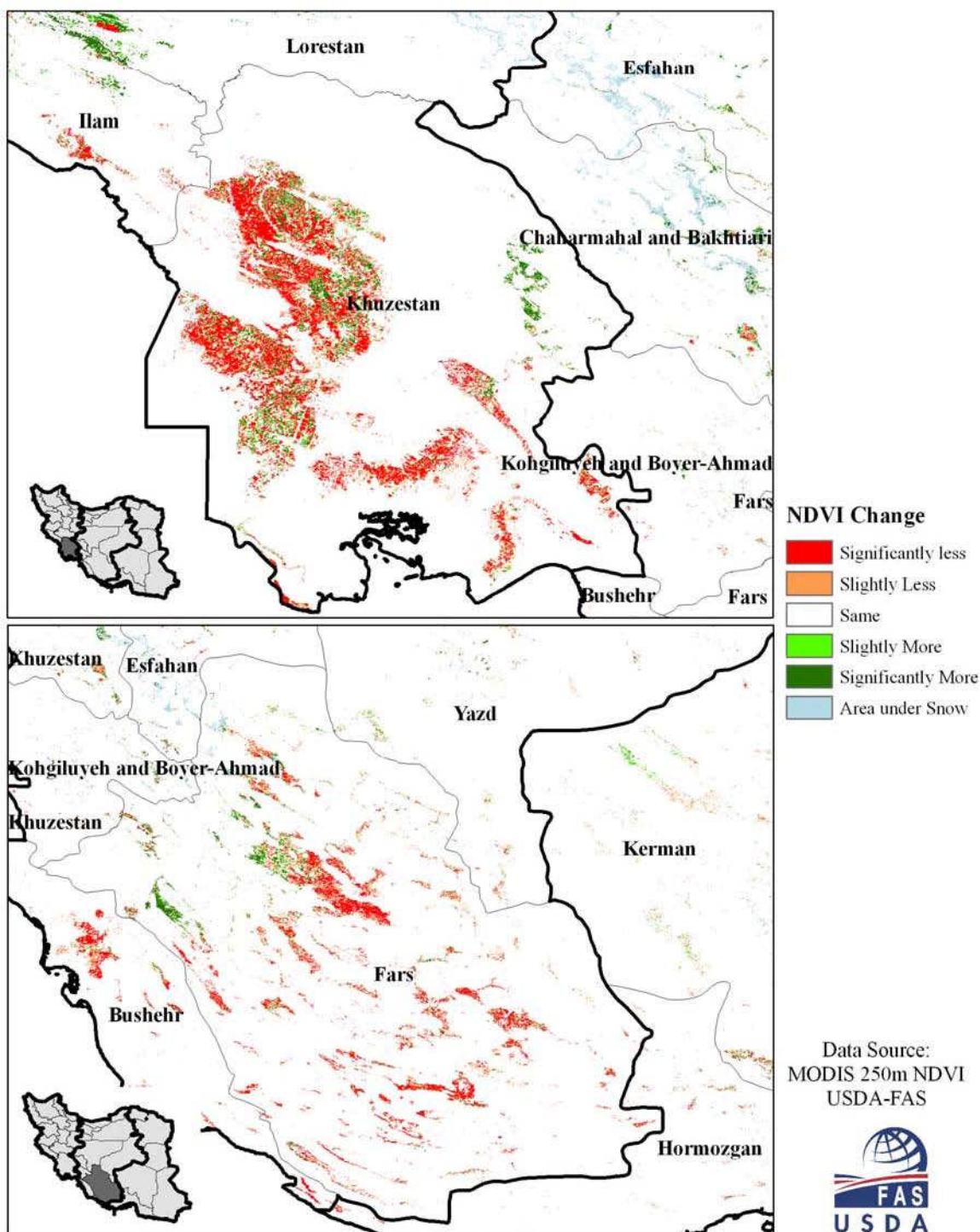


Figure 9. MODIS NDVI comparing vegetation abundance over agricultural lands to the previous year (MY2008/09) over the major irrigated grains provinces of Khuzestan and Fars.

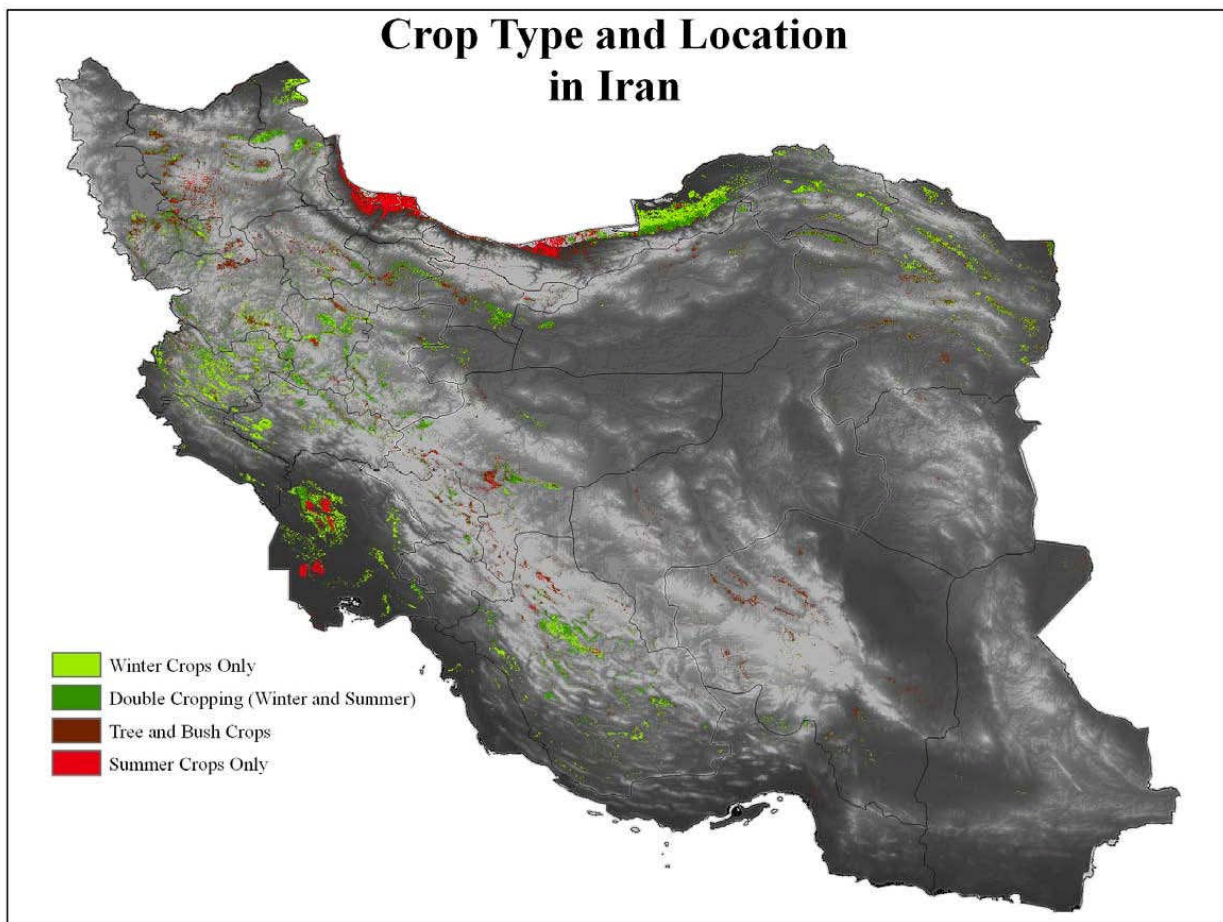


Figure 10. Crop patterns and crop types in the agricultural areas of Iran. Classified according to the timing and location of peaks in vegetation abundance throughout a 5 year time-series of MODIS 250-m NDVI.

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